

REMARKS

In response to the Office Action, the applicants offer the following remarks.

First, the applicants appreciate the opportunity given their counsel, Joshua Cohen and Steven E. Bach, to discuss the subject matter of the claimed invention in a telephone interview with Examiner Estremsky on May 1, 2002. The applicants make the substance of the interviews of record, in compliance with 37 C.F.R. §§ 1.2 & 1.133(b) and M.P.E.P. § 713.04, as follows.

Hill (U.S. Patent No. 2,255,217), Wooton (U.S. Patent No. 2,942,905), Tinnerman (U.S. Patent No. 2,151,284), and Stevens (U.S. Patent No. 1,866,326) were discussed with respect to the current application. Hill, discloses a piston pin retainer (or locking ring) comprising a helical spring bent into an annulus. Applicants' representatives argued that the locking ring of Hill does not suggest an opening that expands radially outward to allow passage of a stud. The Examiner agreed to consider this argument which is presented herein.

Wooten and Tinnerman disclose various springs used to retain a stud or strike. Applicants' representatives argued that amended claims 14 and 19 included the limitation "torroidal" which is not suggested by these references. The Examiner agreed that this limitation appears to differentiate over Wooten and Tinnerman. The examiner agreed that Stevens does not provide what Wooten and Tinnerman lack.

Briefly and in summary, the latching system of the present invention provides releasable engagement between two structures. A resilient member, configured as a torroid, is positioned against a surface of one structure. The resilient member has an opening that expands radially outwardly to allow passage of a stud extending outwardly from the other structure. The stud comprises an outer surface oriented at an angle to the axis of the stud which is releasably engaged by relaxation of the resilient member.

In response to the various paragraphs of the Office Action, the applicants offer the following specific remarks.

A. Paragraph 1

Restriction: In paragraph 1 of the Office Action, the Examiner indicates that claims 9-13, 16-18, 20, and 21 are withdrawn from consideration as being drawn to a non-elected group. Accordingly, applicants have cancelled these claims without prejudice.

B. Paragraphs 2 and 3

Section 112, 2d Para.: The Office Action rejects claims 7 and 8-10 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as their invention. Specifically, the Examiner correctly points out that in claim 7, it is not clear which "said surface" of claim 1 is referred to. That element has been amended to "said surface of said stud", which distinguishes the "said surface" referred to from "a surface of the other one of said structures" and "an outer surface of said resilient member".

C. Paragraphs 4 and 5

Anticipation, Section 102: The Office Action rejects claims 1-3 and 6-8 under 35 U.S.C. § 102(b) as being anticipated by United States Patent No. 2,255,217 issued to Hill. Anticipation requires that each and every limitation of the claim be disclosed, either expressly or under principles of inherency, in a single prior art reference. In re Robertson, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (reversing Board's anticipation rejection that was based on principles of inherency); MPEP § 2131. Absence from the reference of any claimed limitation negates anticipation. Rowe v. Dror, 42 USPQ2d 1550, 1553 (Fed. Cir. 1997) (preamble claim limitation reciting a balloon angioplasty catheter not anticipated by a general purpose balloon catheter).

Claim 1 recites, as one limitation, "said opening of said resilient member being configured to expand radially outwardly to permit passage of said stud". The Hill reference neither expressly nor under principles of inherency discloses that limitation. Accordingly, the applicants respectfully submit that the Hill reference does not anticipate claim 1.

On page 8, lines 19-27, of the specification, the applicants make clear that the opening of the resilient member expands radially outwardly when the stud is inserted into the opening. Thus, the stud is inserted into a stationary resilient member, which relaxes into a groove in the stud to form a friction fit, latching the two structures.

Hill, at col. 2, lines 8-11, clearly states that a locking ring (helical spring bent into an annulus) is inserted after the piston pin is in place. Examiner suggests that locking rings 20 teach applicants' resilient member. The locking rings 20, however, do not expand radially outwardly to permit passage of the stud. To the contrary, any axial movement of pin 13 will jam the spring ring into its groove 14 (in the pin bore).

Claim 1 recites, as another limitation, "said resilient member being configured to engage said surface of said stud for releasable engagement of said stud". The Hill reference neither expressly nor under principles of inherency discloses that limitation. Accordingly, the applicants respectfully submit that the Hill reference does not anticipate claim 1.

On page 8, lines 28-31, the applicants make clear that separation of stud 22 from radial spring 50 is resisted by friction of the radial spring relaxing in a groove in the stud. Separation, however, can be achieved by application of a manual (axial) force, overcoming the friction.

Hill does not disclose or suggest releasable engagement of pin 13 by locking rings 20. To the contrary, the purpose of locking rings 20 is exactly the opposite (i.e., to prevent axial passage of pin 13). Modification of Hill as suggested would render the locking ring of Hill unfit for its intended purpose. Therefore, Hill explicitly teaches away from this limitation of claim 1.

Claims 2, 3, and 6-8 depend from claim 1, and therefore can not be anticipated by Hill, since claim 1 is not anticipated by Hill.

D. Paragraphs 6 and 7

Anticipation, Section 102: The Office Action rejects claims 14 and 15 under 35 U.S.C. § 102(b) as being anticipated by United States Patent No. 2,942,905 issued to Wooton (para. 6) and by United States Patent No. 2,151,284 issued to Tinnerman (para. 7).

As amended, claim 14 recites, as one limitation, “a torroidal radial spring”. The Wooton reference neither expressly nor under principles of inherency discloses that limitation. Accordingly, the applicants respectfully submit that the Wooton and Tinnerman references do not anticipate claim 1.

At page 9, lines 20-26, applicants make clear that the radially spring has a torroidal configuration. This torroidal configuration provides a more uniform and more consistent latching force, because multiple spring coils provide resilient force to the stud around the periphery of the stud. The torroidal configuration also provides a more repeatable release force by deformation of the inner surface of a torroid with respect to the fixed outer surface of the torroid.

Wooton (col. 1 lines 70-72) and Tinnerman (col. 2, lines 47-53) both disclose springs formed from a strip of sheet metal, in which a line contact would be formed with a cylindrical stud. Thus the contact area is limited and the release force will vary due to manufacturing tolerances. Neither Wooton nor Tinnerman suggest the desirability of a particular release force.

E. Paragraphs 8 and 9

Obviousness, Section 103: The Office Action rejects claim 19 under 35 U.S.C. § 103 as unpatentable over United States Patent No. 2,942,906 issued to Wooton in view of United States Patent No. 1,866,326

issued to Stevens. In response to that rejection, the applicants offer the following remarks establishing the nonobviousness of the claimed invention. In view of those remarks, the applicants submit that claim 19 is in condition for allowance.

The applicants contend that claim 19 is not subject to rejection under 35 U.S.C. § 103 because, assuming arguendo that the cited references are properly combined, those references in combination, do not suggest at least one limitation of claim 19. Therefore, the proposed combination of references fail to establish prima facia obviousness.

As claimed in claim 19, the latching system for providing releasable engagement of two structures and maintaining a predetermined gap between the structures includes the limitation "each of said studs extending along an axis and having a groove oriented at an angle to said axis axis and located to maintain a predetermined gap between said structures". Applicants, at page 9 of the specification at lines 9-19 clearly define that the groove location maintains the pre-determined gap between the structures. Nothing in the cited art discloses or suggests that structural aspect of the invention as described and claimed.

F. Paragraph 10

Allowable Claims: The applicant acknowledges with appreciation the Examiner's indication that claims 4 and 5 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 4 depends from base claim 1 without any intervening claims. Claim 5 depends from base claim 1 and intervening claim 5. Claim 4, as amended, has been rewritten as an independent claim including all of the limitations of base claim 1. Accordingly, the objection to claim 4 has been obviated. Claim 5 depends from independent amended claim 4, which is now allowable, and is therefore allowable.

G. Newly added Claims

Claims 22 and 23 have been newly added. Claim 22 more clearly defines the invention as providing the structural limitation of the resilient member having an expanded position. Hill does not disclose or suggest a resilient member having an expanded position. Claim 23 limits the latching system to an enclosure latching system. Hill is not in the field of enclosure latching. No new matter has been added.

H. Conclusion

For all of the foregoing reasons, claim 1 is in condition for allowance and would not have been anticipated by the Hill reference. Because claims 2, 3, and 6-8 depend from a patentable claim, they are also patentable. *See, e.g., In re McCarn*, 101 USPQ 411, 413 (CCPA 1954) (“sound law” requires allowance of dependent claims when their antecedent claims are allowed). Moreover, these claims are nonobvious in view of the applied references.

Claims 4, has been amended, and, as amended, is rewritten in independent form including all of the limitation of the base claim and any intervening claims. As the Examiner stated, claim 4 is allowable as rewritten. Claim 5 is dependent on claim 4 and is allowable, because it depends from an allowable claim.

Claim 7 is amended, and as amended, particularly points out and distinctly claim the subject matter which the applicants regard as their invention. The requirements of Section 112, second paragraph, are now met. With those requirements met, and because claim 7 depends from allowable claim 1, claim 7 is allowable.

Claims 14 and 19 are amended, and as amended, include limitations not suggested by the cited reference. Moreover, claims 14 and 19 are nonobvious in view of the applied references.

Newly added claims 22 and 23 are patentable over the cited references. No new matter has been added.

The rejections under 35 U.S.C. §§ 102, 103, and 112 and the objections should all be withdrawn. Favorable action is earnestly solicited. Finally, the Examiner is invited to call the applicants' undersigned representative if any further action will expedite the prosecution of the application or if the Examiner has any suggestions or questions concerning the application or the present Response. In fact, if the claims of the application are not believed to be in full condition for allowance, for any reason, the applicants respectfully request the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims pursuant to MPEP § 707.07(j) or in making constructive suggestions pursuant to MPEP § 706.03 so that the application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,

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May 13, 2002

Joshua L. Cohen



VERSION WITH MARKINGS TO SHOW CHANGES MADE

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IN THE CLAIMS:

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GROUP 3600

1 4. (Amended) A system for providing releasable engagement between
2 two structures, said system comprising:

3 a stud extending outwardly from one of said structures along an axis,
4 said stud having an outer surface oriented at an angle to said axis; and

5 a resilient member positioned adjacent a surface of the other one of
6 said structures, said resilient member having a substantially toroidal
7 configuration, an outer surface contacting said surface of said structure to
8 prevent movement of said outer surface radially outward, and an inner
9 surface moveable radially outward;

10 said toroidal configuration of said resilient member defining an
11 opening smaller than said stud, and said opening of said resilient member
12 being configured to expand radially outward to permit passage of said stud,
13 said resilient member being configured to engage said surface of said stud for
14 releasable engagement of said stud, thereby providing releasable engagement
15 between said structures;

16 [The system as recited in claim 1,] wherein one of said structures
17 comprises a door.

1 7. (Amended) The system as recited in claim 1, wherein said surface of
2 said stud defines a groove that extends about a periphery of said stud.

1 14. (Amended) A system for providing releasable engagement between
2 two structures and for maintaining a predetermined gap between said
3 structures, said system comprising:

4 a substantially cylindrical stud mounted on one of said structures and
5 extending outwardly therefrom along an axis, said stud having a groove

6 extending about a periphery of said stud at an angle to said axis of said stud;
7 and

8 a torroidal radial spring positioned adjacent a surface of the other one
9 of said structures, said radial spring having an outer surface contacting said
10 surface of said structure to prevent movement of said outer surface radially
11 outwardly with respect to said axis of said stud, said radial spring also having
12 an inner surface movable radially outwardly with respect to said axis of said
13 stud;

14 said inner surface of said radial spring defining an inner diameter
15 smaller than the maximum diameter of said stud when said radial spring is
16 relaxed, and said inner surface being configured to expand radially outwardly
17 to permit passage of said stud when said radial spring is expanded, said radial
18 spring being configured to engage said groove of said stud for releasable
19 engagement of said stud, thereby providing releasable engagement between
20 said structures, and thereby maintaining said predetermined gap between said
21 structures.

1 19. (Amended) A system for providing releasable engagement between
2 two structures and for maintaining a predetermined gap between said
3 structures, said system comprising:

4 a plurality of substantially cylindrical studs mounted on one of said
5 structures and extending outwardly therefrom, each of said studs extending
6 along an axis and having a groove oriented at an angle to said axis and
7 located to maintain said predetermined gap between said structures; and

8 a plurality of torroidal radial springs mounted adjacent surfaces of the
9 other one of said structures, each of said radial springs being mounted at a
10 location corresponding to an axis of one of said studs when said structures
11 are adjacent one another, and each of said radial springs having an outer
12 surface contacting a surface of said structure to prevent movement of said
13 outer surface radially outwardly, and each of said radial springs also having
14 an inner surface movable radially outwardly;

15 said inner surface of each of said radial springs defining an inner
16 diameter smaller than the maximum diameter of said studs when said radial
17 springs are relaxed, and said inner surface of each of said radial springs
18 being configured to expand radially outwardly to permit passage of one of
19 said studs when said radial springs are expanded, each of said radial springs
20 being configured to engage said groove of one of said studs for releasable
21 engagement of said stud, thereby providing releasable engagement between
22 said structures, and thereby maintaining said predetermined gap between said
23 structures.

Claims 22 and 23 are newly added.